

Abstract

Disclosed herein are novel phenol oxidizing enzymes naturally-produced by
5 strains of the species *Stachybotrys* which possess a pH optima in the alkaline range
and which are useful in modifying the color associated with dyes and colored
compounds, as well as in anti-dye transfer applications. Also disclosed herein are
biologically-pure cultures of strains of the genus *Stachybotrys*, designated herein
Stachybotrys parvispora MUCL 38996 and *Stachybotrys chartarum* MUCL 38898,
10 which are capable of naturally-producing the novel phenol oxidizing enzymes.

Disclosed herein is the amino acid and nucleic acid sequence for
Stachybotrys phenol oxidizing enzymes as well as expression vectors and host cells
comprising the nucleic acid. Disclosed herein are methods for producing the phenol
oxidizing enzyme as well as methods for constructing expression hosts.